

providing a source of pseudo random acoustical noise to an characterized external speaker source separate from the

directing the pseudo random acoustical noise to an input of a microphone used with the portable communications device;

discontinuing the source of pseudo random acoustical noise from the external speaker source;

increasing the amplitude of the pseudo random acoustic noise such that it can be detected by the microphone;

returning the portable communications device to an operational mode.

utilizing a filter between the source of pseudo random acoustical noise and the external speaker to compensate for irregularities in the frequency response of the external speaker.

3. A method of acoustic transducer calibration as in claim
1 further including the step of:

5 comparing the output of the at least one digital signal
processor with an optimal acoustic signal from the output
of the pseudo random acoustic noise to provide an error
signal for adjusting the coefficients of the at least one
digital signal processor.

10 4. A method of acoustic transducer calibration as in claim
1 wherein the source of pseudo random noise is from the
at least one digital signal processor.

09826503-040504

7. A method of acoustic transducer calibration for
optimizing the frequency response and gain of a microphone
located within a portable communication device comprising
5 the steps of:
generating a source of acoustic pseudo random
noise from at least one digital signal processor located in
the portable communications device;
providing the pseudo random noise to an external
10 speaker;
directing the pseudo random noise from the
external speaker to the microphone;
porting the output of the microphone to at least
one digital signal processor;
15 comparing the pseudo random noise with an output
of the at least one digital signal processor; and
adjusting a plurality of coefficients in the at
least one digital signal processor to produce an optimized
microphone output for the portable communications device.

20

F06040"040501

8. A method of acoustic transducer calibration for optimizing the frequency response and gain of an internal speaker located within a portable communication device

5 comprising the steps of:

generating a source of acoustic pseudo random noise from at least one digital signal processor located in the portable communications device;

10 providing the pseudo random noise to the internal speaker;

directing the pseudo random noise from the external speaker to a microphone in the portable communications device;

15 porting the output of the internal speaker to the at least one digital signal processor;

comparing the pseudo random noise with an output of the at least one digital signal processor; and

20 adjusting a plurality of coefficients in the at least one digital signal processor to produce an optimized internal speaker output for the portable communications device.

05336503-040304